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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/765,123

01/28/2004

Pierre Holzschuh

0514-1105-1

2245

466

7590

06/27/2007

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EXAMINER

MAHAFKEY, KELLY J

ART UNIT

PAPER NUMBER

1761

MAIL DATE

DELIVERY MODE

06/27/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/765,123

Applicant(s)

HOLZSCHUH ET AL.

Examiner

Kelly Mahafkey

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1761

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/5/07 & 4/5/07.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-15,17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-15,17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Amendments made 3/5/07 and 4/5/07 have been entered.

Claims 1,2,4-15,17,and 18 are pending.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 5, 2007 has been entered.

Specification

Applicant is reminded of the proper format of a specification.

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
 - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."

- (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (d) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (e) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (f) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

35 USC § 112 Claim Rejections

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 2, 4-15, 17, and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "wherein the heated rotatable screw comprises heating power sufficient to supply calories necessary to elevate the temperature of the organic material" in claim 1 is a relative term which renders the claim indefinite. The term "heating power sufficient... to elevate the temperature" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention. It is unclear as to how much heating power is required.

The term "wherein the heated rotatable screw comprises heating power sufficient to elevate the temperature of the organic material to 300-380C" in claim 17 is a relative term which renders the claim indefinite. The term "heating power sufficient" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention. It is unclear as to how much heating power is required.

The term "wherein the heated rotatable screw comprises heating power sufficient to elevate the temperature of the organic material to 300-400C" in claim 18 is a relative term which renders the claim indefinite. The term "heating power sufficient" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention. It is unclear as to how much heating power is required.

Claim 1 recites the phrase, "heating said organic material in a said chamber to a *temperature comprised between 300C and 400C*". The limitations of the phrase "temperature comprised between" are unclear as the term comprising is non exclusive, and thus can include other temperatures.

Claims 1, 17, and 18 recites the limitation "so as to effect pyrolysis during its movement". It is unclear as to what "it" is. It is further unclear as to what "effects" are provided by the movement.

Claim 4 recites, "wherein the produced smoke is condensed... in a suitable condensation device." It is unclear as to what condensation devices are "suitable" and to which condensation devices are "unsuitable" and to who determines such standards.

Claim 10 recites, "said pyrolysis reactor comprising essentially..." It is unclear as to what limitations are included in the term "comprising essentially". It is unclear if all of the recited elements must be present, if other elements are also present, ect.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 2, 4-15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Underwood et al (US 4876108) in view of the combination of Weissman (US 3012124) and Wistreich et al (US 3875314). The references and rejection are incorporated herein and as cited in the office action mailed April 5, 2006.

Newly added claim 18 recites limitations similar to those of claim 1 and thus is rejected for the same reasons of record that claim 1 is rejected. Specifically regarding newly added limitation of a heated rotatable screw comprising heating power sufficient to supply calories necessary to elevate the temperature of the organic material, Underwood teaches of a method for pyrolysis of wood including heating of the wood at a temperature of 400-1000C; Weisman teaches of heating wood, in which a rotatable screw is included in the heating chamber; and as stated in the previous office action, one of ordinary skill in the art would have been motivated to use the pyrolysis rotatable screw in the heating chamber as taught by Weisman in order to increase efficiency of the process. It was common in the art at the time the invention was made that screws utilized during heating at temperatures between 400-1000C were produced from metal (i.e. a heat conductor). One of ordinary skill in the art would expect that ^{Such a} metal screw would ~~be~~ comprise a heating capacity sufficient to heat the organic material since it was a heat conductor. One of ordinary skill in the art would expect the metal screw to become heated during the pyrolysis process in which the heating chamber was heated

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to 400-1000C. Furthermore, one of ordinary skill in the art would expect that some of the heat from the heated screw would be transferred to the organic material and thus, the heated screw would heat the organic material to some extent.

Claims 1, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gruhl (US 4992404).

Gruhl teaches a pyrolysis process of an organic material with a screw conveyor at a temperature of 200-800C. Gruhl teaches of removing the volatile products (i.e. smoke products) and the organic residue. Refer specifically to Column 2 lines 8-36.

Gruhl, however, is silent to the pyrolysis reactor or the screw conveyor as substantially hermetically sealed and to the heated rotatable screw comprising heating power sufficient to supply calories necessary to elevate the temperature of the organic material.

Regarding the pyrolysis reactor as substantially hermetically sealed, Gruhl teaches that the heating of the organic material forms volatile products. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substantially hermetically seal the pyrolysis reactor or the screw conveyor in order to prevent the escape of the volatile products formed during the heating process.

Regarding the heated rotatable screw comprising heating power sufficient to supply calories necessary to elevate the temperature of the organic material screw, it was common in the art at the time the invention was made that screws utilized during heating at temperatures between 400-800C were produced from metal (i.e. a heat conductor). One of ordinary skill in the art would expect that ^{such a} metal screw would ~~be~~ comprise a heating capacity sufficient to heat the organic material since it was a heat conductor. One of ordinary skill in the art would expect the metal screw to become heated during the pyrolysis process in which the heating chamber was heated to 400-800C. Furthermore, one of ordinary skill in the art would expect that some of the heat from the heated screw would be transferred to the organic material and thus, the heated screw would heat the organic material to some extent.

Claims 1, 2, 4-15, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holzschuh (US 2004/0096568 A1).

Holzschuh teaches of a process for the production of a smoke product. Holzschuh teaches that the process includes treating an organic material, including wood chips, with pre-drying and pyrolysis at a temperature of between 200-880C, preferably between 300-400C. Holzschuh teaches that the consumed organic material is removed (i.e. wood charcoal) and the produced smoke is condensed in a condensation device (i.e. to form liquid smoke). Holzschuh teaches that a portion of the condensed smoke is re-injected into the pyrolysis reactor. Holzschuh teaches that the pyrolysis takes place under precise temperature and atmospheric control, such that the temperature is limited to a variation of about 1C and the fluxuation in the volume of oxygen is controlled to about 0.1%. Holzschuh teaches that the heating can be accomplished by electrical heating by the Joule effect. Holzschuh teaches that the product contains 10ppb or less benzopyrene and 20ppb or less benzoanthracene. Holzschuh teaches that the smoke is used to flavor liquid food stuff. Refer specifically to abstract, paragraphs 0004, and claims 0023-0028, 0031, 0037-0042, 0046-0048, and claims 1-15.

Holzschuh teaches that the pyrolysis occurs in a vibratory bed, however, does not teach the pyrolysis as accomplished with a heated endless screw as recited in claims 1, 17, and 18. It was known in the art at the time the invention was made to use an endless screw conveyors as pyrolysis reactors. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute one art recognized functional equivalent (i.e. an endless screw conveyor) for another (i.e. a vibratory bed) in the pyrolysis process as disclosed by Holzschuh, depending on which equipment was more available and affordable at the time the invention was made. To chose either pyrolysis reactor would not have involved an inventive step, and do not provide patentable distinction to the claims. Thus, the claimed invention would have been obvious, absent any clear and convincing evidence and/or arguments to the contrary.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 17-34 of copending Application No. 10/612972, as amended 6/20/06 in view of Weissman (US 3012124). The references and rejection are incorporated herein and as cited in the office action mailed December 5, 2006. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to 103 Arguments

Applicant's arguments filed March 5, 2007 have been fully considered but they are not persuasive.

Applicant's arguments regarding the newly added limitations of a heated rotatable screw have been addressed in the rejections above.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies

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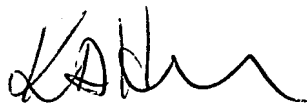
(i.e. a heated screw which is the *only* heating element for the process of pyrolysis, that the heated screw is responsible for heating organic material to a temperature of 300-400C) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). It is noted that applicant's claims recite, "one rotatable heated endless screw, wherein said heated rotatable screw comprises a heating power sufficient to supply calories necessary to elevate the temperature of the organic material". Applicant's claims recite that the screw is capable of heating the organic material and that it does heat the organic material, however, the claims do not recite that the heated screw which is the *only* heating element for the process of pyrolysis or that the heated screw is responsible for heating organic material to a temperature of 300-400C.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kelly Mahafkey whose telephone number is (571) 272-2739. The examiner can normally be reached on Monday through Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571) 272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


KEITH HENDRICKS
PRIMARY EXAMINER

Kelly Mahafkey

